What is claimed is:

1. A method for improving the germline transmission efficiency of avian primordial germ cells (PGCs), which comprises the steps of: (a) isolating primordial germ cells (PGCs) from an avian embryonic gonad; and (b) culturing said PGCs *in vitro* for at least 5 days.

2. A method for preparing an avian germline chimera exhibiting the improved germline transmission efficiency, which comprises the steps of: (a) isolating primordial germ cells (PGCs) from an avian embryonic gonad; (b) culturing said PGCs *in vitro* for at least 5 days; (c) injecting said cultured PGCs into a recipient embryo; and (d) incubating and hatching an egg containing said recipient embryo, whereby the avian germline chimera is prepared.

3. A method for preparing a transgenic avian exhibiting the improved germline transmission efficiency, which comprises the steps of: (a) isolating primordial germ cells (PGCs) from an avian embryonic gonad; (b) transferring a foreign gene to said PGCs; (c) culturing said transformed PGCs *in vitro* for at least 5 days; (d) injecting said cultured PGCs into a recipient embryo; and (e) incubating and hatching an egg containing said recipient embryo, whereby the transgenic avian is prepared.

4. The method according to any one of claims 1-3, wherein said avian species is a chicken, a quail, a turkey, a duck, a goose, a pheasant or a pigeon.

5. The method according to any one of claims 1-3, wherein said

PGCs are isolated from an embryonic gonad.

6. The method according to any one of claims 1-3, wherein said *in vitro* culture of PGCs is conducted for at least for 8 days.

7. The method according to claim 6, wherein said *in vitro* culture of PGCs is conducted for at least for 10 days.

8. The method according to any one of claims 1-3, wherein said *in vitro* culture of PGCs is conducted in a medium containing a cell growth factor and a differentiation inhibitory factor.

9. The method according to claim 8, wherein said cell growth factor is selected from the group consisting of stem cell factor, fibroblast growth factor, interleukin-11, insulin-like growth factor and their combination.

10. The method according to claim 8, wherein said differentiation inhibitory factor is leukemia inhibitory factor.

11. The method according to any one of claims 1-3, wherein said *in vitro* culture of PGCs is conducted in a medium containing a serum selected from the group consisting of avian serum, mammalian serum, and their combination.

12. The method according to any one of claims 1-3, wherein said *in vitro* culture of PGCs is conducted on a gonadal stroma feeder cell layer.

13. The method according to any one of claims 1-3, wherein said PGCs *in vitro* cultured in step (b) express a stage specific embryonic antigen-1 (SSEA-1).

14. The method according to any one of claims 1-3, wherein said injecting cultured PGCs into the recipient embryo is carried out by injecting cultured PGCs into the dorsal arota of the recipient embryo.

15. The method according to claim 3, wherein said transferring the foreign gene to PGCs is carried out by liposome-mediated transfection or electroporation.

16. The method according to claim 3, wherein said foreign gene contains an antibiotic-resistant gene as a selective marker.

17. The method according to claim 3, wherein said method further comprises the step of selecting PGCs exhibiting the antibiotic resistance property after step of (c) and the step of (d) is conducted using said PGCs exhibiting the antibiotic resistance property.